

Comments on feasibility of sharing 3.7 GHz to 4.2 GHz spectrum between satellite and terrestrial services

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Conner Media Corporation, Media East, LLC, and Heritage Broadcasting, LLC, (“Commenters”) own and operate three FM stations, one AM station, one FM translator, with a construction permit for a second translator and an application for a third translator¹. The stations are in small markets in Eastern North Carolina. In a small rural areas, the stations rely on a number of syndicate programs to fill out its program schedule. It is not economically possible to produce all content locally in small communities.

The syndicated programs utilize C-band satellite reception equipment for delivery of program content for broadcast. As such, Commenters have a great interest in preserving interference-free reception of such satellite signals.

As the Commission is well aware, satellite reception deals with low-power-density signals coming from space, signals that are often just a few dB above the noise floor. Large-aperture, high-gain antennas are required to resolve and recover these signals.

Mobile operation, as proposed for 5G service, uses cellular operation, with multiple base stations using sectorized antennas which typically provide omnidirectional coverage, and omnidirectional mobile antennas. Base station transmit power levels need to be high enough to cover fading and local obstructions. The power density at the edges of cells is far higher than the signal level from satellites. Mobile units are not constrained by the planned service boundaries on individual base stations, and use dynamic power control to increase transmission power at and beyond the planned service boundaries.

Coordination systems, such as that used for TV White Spaces and proposed for the Citizens Broadband Radio Service, rely on coordinators to permit use of frequencies in areas where incumbent operators are absent. For TV White Space operation, geolocation can protect the service area of television stations because the coverage areas of television stations are well defined. The database for satellite receive only locations is incomplete, and will likely remain so. Commenters are working to register all their unregistered antennas, but are aware of other broadcasters who are unlikely to go to the expense of registration.

Uplinks are licensed. The Commission has the ability to determine how many receivers there are by asking the uplinks for data. The current window will result in registration of many of the unregistered antennas, but by no means all.

¹ Conner Media Corporation is the licensee of WZUP, La Grange, North Carolina, W248CS, Williamston, North Carolina, and the applicant for a new translator at Cary, North Carolina. Media East, LLC, is the licensee of WLGT, Washington, North Carolina, and WSTK, Aurora, North Carolina. Heritage Broadcasting, LLC, is licensee of WJNC, Jacksonville, North Carolina, and permittee for W225CV, Jacksonville, North Carolina.

Many syndicated programmers recently relocated their services from satellite AMC-8 to AMC-18 as the original satellite neared end of life. Such relocations are not unusual. Some relocations are emergencies necessitated by satellite failures. Most broadcasters who register their antennas register protection for the entire arc, though they only use a single satellite at a time. They are therefore unaware of any interference at different pointing angles until there is a need to repoint the antenna. Allowing nearby shared use is likely to create interference which remains hidden until an antenna is moved, when the interference would block reception of the signals

The Commission needs to carefully consider the possible adverse effects that terrestrial sharing of C-band satellite signals in the 3.7-4.2 GHz band would have. The existing C-band satellite system has been in place for many years. It is reliable, provides access to nationally distributed programming, and employs the very-cost-effective one-to-many broadcast model. This system is invaluable and must be protected. Sharing use of the C-band satellite spectrum with mobile systems would result in destructive interference to satellite communications.

Demand for satellite distribution space is increasing, especially with video moving to HD and Ultra HD/4K. Satellite arc spacings have been decreased to allow for additional satellites. The providers of the space segments have large investments over decades. Replacement also takes decades.

There are no reasonable alternatives to C-Band satellite for the receipt of syndicated programming for rural radio stations. The Ku band has weather related. Rain fade is a problem that no increase in dish size can eliminate.

The Federal Government recognizes that broadband access is not present in many rural areas. The very act that resulted in this docket is a separate effort to improve rural broadband. Attempting to share the 3.7-4.2 GHz band would result in a removal of satellite service in areas where there is no existing terrestrial service.

Respectfully submitted,

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